DOCUMENT RESUME

ED 271 733 CS 008 505

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TITLE The Relation of Everyday Activities of Adults to Their Prose Recall Performance.
PUB DATE Apr 86
GRANT AG03438
NOTE 32p.; Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986). Research supported by a grant from the National Institute on Aging.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adults; *Age Differences; *Learning Activities; Older Adults; Prose; Reading Ability; Reading Habits; *Reading Research; *Recall (Psychology); Verbal Ability; Word Lists
IDENTIFIERS *Memory Tasks

ABSTRACT

A study examined the connection between the everyday activities of adults of different ages and their performance on a prose recall task. Subjects were 54 adults, 18 in each of three age groups (18-32, 40-54, and over 62). Written recall of two 388-word expository prose passages was used for the prose recall measure. For the activities measures, subjects kept a structured diary in which they indicated how they spent their time, as well as the specific materials they had read, and how long they had spent reading each item. Regression analyses showed that the demographic variables of age, education, and verbal ability were the best predictors of prose recall. Total time spent reading was also significantly correlated with recall. In multiple regression analyses, reading categories of technical journals, science books, textbooks, and religious materials made significant contributions to explaining the variance in prose recall, as did other activities that require reading. The results provide limited support for a "practice" model that argues that performance on prose recall tasks is related to the amount of practice adults get in similar activities in everyday life. (Author/SRT)

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THE RELATION OF EVERYDAY ACTIVITIES OF ADULTS TO THEIR PROSE RECALL PERFORMANCE

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ABSTRACT

This study is concerned with the connection between the everyday activities of adults of different ages and their performance on a prose recall task. Subjects were 54 adults, 18 in each of three age groups (18-32, 40-54, over 62). Written recall of two 388-word expository prose passages was used for the prose recall measure. For the activities measures, a structured diary form was used to collect information. Regression analyses showed that the demographic variables of age, education and verbal ability were the best predictors of prose recall. Total time spent reading was also significantly correlated with recall. In multiple regression analyses, reading categories of technical journals, science books, textbooks, and religious materials made significant contributions to explaining the variance in prose recall, as did other activities which require reading. The results provide limited support for a "practice" model which argues that performance of prose recall tasks is related to the amount of practice which adults get in similar activities in everyday life.

This paper was presented at the 1986 meetings of the American Educational Research Association, San Francisco, CA. This research was supported by National Institute on Aging grant AG03438. The authors thank Carole J. Young for her help in collecting and coding data. Requests for reprints should be sent to G. Elizabeth Rice, Department of Educational Psychology, Arizona State University, Tempe, AZ 85287.

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There has been an increasing concern in recent years with the ecological validity of memory tests for older adults. One response to this concern has been to use prose recall tasks rather than word lists to test memory in older adults (Hartley, Harker & Walsh, 1980; Hultsch & Dixon, 1984). Prose is certainly more familiar to adults than lists of nonsense syllables or disconnected words, but there are few occasions in the everyday lives of most adults calling for verbatim or even very complete recall of prose material of any length (Rice, 1986b). Thus, even prose recall tasks may be relatively unrelated to the everyday lives of adults. The present study is concerned with the connection between the everyday activities of adults of different ages and their performance on a prose recall task undertaken in a laboratory situation.

Some researchers have responded to the concern with ecological validity by using memory tasks which are likely to be undertaken by adults in the course of their everyday lives (Demming & Pressey, 1957; Neisser, 1982). Still others have looked for connections between self assessments of memory in everyday life and performance on memory tasks in the laboratory (Dixon & Hultsch, 1983; Zelinski et al, 1980). In addition to these studies of self-reports of memory, Sunderland, et al. have found significant correlations between reports of other family members about memory abilities and performance on some laboratory tests, notably prose recall. In general, the results of these studies suggest that prose recall may be one memory

task which is related to everyday memory demands of adults.

Studies of the effects of increasing age on prose recall tasks have not provided consistent results. Many studies have found deficits in recall with increasing age (Cohen, 1979; Dixon, Simon, Nowak & Hultsch, 1982; Taub, 1975, 1976; Taub & Kline, 1978; Zelinski, Gilewski, & Thompson, 1980), while others have not (Harker, Hartley & Walsh, 1982; Meyer & Rice, 1981, 1983). Recent reviews of the literature (Hultsch & Dixon, 1984; Meyer & Rice, 1983, 1985) have suggested that the verbal ability of the adult is an important factor in determining whether or not aging deficits will be found. In general, those studies which have not found deficits in prose recall with age have used adults who are high in verbal ability and/or education. Studies using older adults with lower verbal abilities have consistently shown deficits in prose recall. Studies of the effects of age on other cognitive skills have also found an interaction between verbal ability level and effects of age (see Poon, Krauss, & Bowles, 1984).

In an effort to determine if there are factors underlying the ability one which affect performance on prose recall tasks, Rice and Meyer (1985) investigated the reading behaviors of young and older adults of high and average verbal ability. They found that certain reading behaviors are related to success on prose learning tasks for both young and old adults, and that older adults of average verbal ability have the lowest incidence of these behaviors. High scorers on recall tasks were those who were highly practiced at reading and who took an analytical

approach to the reading of text. Specifically, older adults of high verbal ability reported more enjoyment of reading and spent more time reading than did older adults of average verbal ability. These data lend support to their hypothesis that older subjects of high verbal ability perform as well as young subjects on prose recall tasks because they practice the necessary reading skills, while average vocabulary subjects do not keep in practice.

Further support for such a practice hypothesis comes from a study by Zivian & Darjes (1983) who found that the memory performance of middle-aged adults in school was as good as that of young university students, while the performance of middle-aged adults out of school for at least five years was as poor as that of older adults. The tasks used was a word list recall task, in which older subjects consistently perform more poorly than young ones. While there was no consideration of the verbal ability level of the subjects, one implication of the study is that memory abilities may be maintained by engaging in cognitive activities (such as those involved in attending school) which require their use.

The study to be reported here investigates whether specific everyday activities are related to performance on a controlled prose recall task. In particular, it provides a test of the "practice effect" explanation suggested by Rice and Meyer (1985) which suggests that performance on prose recall tasks is related to the amount of practice an adult gets in reading and recall skills in everyday life. For example, being in school keeps

young adults of all ability levels reading, but without the influence of school, the reading habits of adults of average and high ability levels may vary considerably. Also investigated is an alternative formulation of the practice model, which extends the relevant practice to include other activities which require similar cognitive skills.

In this study we made a thorough investigation of the question of practice in reading skills in everyday life. Fifty-four subjects kept structured diaries over the space of five weeks in which they indicated how they spent their time, as well as the specific materials they had read, and how long they had spent reading each item. The data from the diaries have been reported by Rice (1986a, 1986b). In this paper, the diary data are related to their performance on prose recall tasks through various regression analyses.

METHODS

Subjects:

The subjects were 54 adults, 18 in each of three age groups: young (18-32), middle (40-54), and old (62 and over). Within each age group, half of the subjects were identified as high in verbal ability based on a score of 69 or over on the Quick Word Test (Borgatta & Corsini, 1964), and half as average in verbal ability (Quick score less than 55). The ration of males to females (1 to 2) was approximately equal across age groups. The subjects who were asked to complete diaries were a subset of over 500 subjects who participated in a series of related prose recall tasks (see Meyer, 1983). Some of the young

and most of the older subjects were from the studies reported in Meyer and Rice (1983) and in Rice and Meyer (1985). Most of the new subjects were younger ones recruited in an effort to make the young high group equivalent to the older high one in vocabulary scores. All subjects were volunteers from the local community and were paid about $10 for the recall tasks (completed at the University) and $30 for the diary (completed in their homes). Table 1 presents data for the age, education, and vocabulary scores of the different subject groups. There are no significant age differences across the ability groups, or ability differences across the age groups. Both age and ability effects were significant for the education variable, however (age: $F(2,48)=4.7$, $p<.05$; ability: $F(1,48)= 56.25$, $p<.001$).

Insert Table 1 about here

Prose Recall Methods:

Materials - The passages used for the prose recall measure were two 388-word expository prose passages: one on the topic of supertankers and the other on the topic of the development of railroads (see Meyer, 1985 for the text of the passages). The passages are indistinguishable from naturally occurring prose and were adapted from publications for ninth grade readers. Each passage contained 244 scorable idea units as determined by the Meyer prose analysis system (Meyer, 1975, 1985).

Procedures - The order of presentation of the two passages

was counterbalanced. Subjects were instructed to read the passages at their normal reading speed for a magazine article of interest to them. They used digital timers to record their reading and writing times. Subjects read the first passage, recalled it in writing, then read and recalled the second passage. Subjects were told that we wanted to see how many ideas they could remember and if they could remember how the ideas were interrelated. They were instructed to use their own words or the words of the passage. The recall protocols were scored for the presence or absence of the 244 idea units in the content structure of each passage (Meyer, 1975, 1985); inter-scorer reliability was greater than .95.

Activity/Diary Methods:

Materials and procedures - A structured one-page (two sided) diary form was used to collect information for this phase of the study. The front of the form blocked off the day into one hour segments. Subjects were asked to fill in the blocks, to rate how typical their day was, and to provide comments as they felt were appropriate. The reverse of the form provided spaces for listing the specific items read during the day, including title and author, time spent reading the item, why it was read, and scales for rating the difficulty and interest of the item. Subjects were also asked to indicate any writing done during the day.

Diaries were kept each day for week long periods, every other week, until a total of five weeks had been collected.

Subjects submitted their first week's diary for review and were contacted if their reporting was inadequate. Subjects reported the task as both enjoyable and informative.

Coding - A list of all items reported to have been read by any subject was made. This list of 770 items was then divided into 21 categories of similar items (see Table 2 for a list of the categories). Assignment of items to categories was made by two independent raters, with disagreements settled by discussion. The number of items per category ranged from 1 for readers own notes to 175 for fiction. The number of hours spent reading in each category was recorded on a weekly basis for each subject. A similar procedure was used for activities, for which 19 categories were identified on the basis of the kinds of cognitive skills involved (see Table 2 for a list of these categories). The content of the reading and other activity categories are for the most part well described by their titles. However, see Rice (1986a) for representative activities in each category and for the relative frequencies of activities and of reading in each category for the different age and ability groups.

Insert Table 2 about here

A note should be made here about the difference between the READING variable of total time spent reading and the ACTIVITY variable of reading. The first is a total of all reading of any

kind reported by a subject. The activity variable of reading does not include time coded under other activities, specifically studying. Because studying makes use of skills so closely related to those in our prose recall task, it was desireable to isolate this activity as much as possible.

A secondary coding of leisure activities was performed for the older group in an effort to examine more closely some of the activities which might be related to maintaining the cognitive skills needed for prose recall. The categories included volunteer work (none of the older adults was employed), skilled card games (primarily bridge), chance card games (primarily solitaire), games of chance (primarily bingo), and word games (primarily crossword puzzles). The average time per week spent in each of these activities was used in the analyses.

Analysis:

The gender variable did not correlate with recall and was not used in the analyses. For the purposes of the various regression analyses, the five weekly totals for each reading and activity variable were averaged to create a single weekly average. Because of the low frequencies of many of the reading variables and the consequent difficulties with outlier effects, most of the reading variables were recoded as dichotomous variables. Only the categories of text, fiction, newspaper, and the total of time spent reading were retained as continuous measures of time spent. Specific analyses performed are discussed in the results section.

RESULTS

Age and Vocabulary Effects on Recall

A 3 (age groups: young, middle, old) by 2 (vocabulary groups: high and average) ANOVA was performed on the total number of idea units correctly recalled from the passages. Main effects for age ($F(2,48)=10.22$, $p<.001$) and vocabulary ($F(1,48)=34.29$, $p<.001$) were both significant. The expected age by vocabulary interaction was not significant. However, pre-planned Tukey multiple comparisons tests showed no significant difference in recall among the four following groups: young high vocabulary (mean = 119.1) and young average vocabulary (mean = 99.2), middle high (mean = 106.3), and old high (mean = 98.6). The middle average and old average groups also did not differ from each other (means of 68.2 and 65.4, respectively), though each differed significantly from its high vocabulary counterpart and from the two young groups. Thus, even though there is no age x vocabulary interaction, earlier findings regarding the effects of vocabulary level on age-related deficits in recall are replicated here. Specifically, no significant age- related deficits in prose recall for older adults of high verbal ability were found, but such deficits were found for older adults with average vocabulary scores.

Predicting Recall From Everyday Activities:

Table 2 presents the demographic, reading, and activity variables from the study and their simple correlations (r) with

the recall variable for both the entire group of 54 adults (the all-age analysis) and for the older group alone. In addition to the three demographic variables of age, vocabulary, and education, five of the reading category variables and four activity variables have significant correlations. Among the demographic variables, education shows the strongest correlation for the all-age analysis, followed by vocabulary. When the older adults are analyzed alone, this is reversed, with vocabulary being stronger than education. Age shows a significant negative correlation with recall (increasing age, decreasing recall) for the all-age analysis, though the relationship is of a lesser magnitude than those for education or vocabulary.

Among the reading variables, number of hours spent reading textbook type materials, whether or not technical journals were read, and the total number of hours spent reading materials of any sort were all significantly related to recall in the all-age analysis. For the older group alone none of these three variables produced a significant correlation. Instead there was a positive relation between recall and whether or not religious materials were read, and a very strong negative relation between recall and the reading of original materials written by others. Since letters and mail make up the bulk of this category, this correlation indicates that those who report reading letters perform poorly on the recall task.

Among the activity variables in the all-age analysis, the amount of time spent on personal care was negatively related to

recall, while time spent studying was positively related. For the older adults alone the variables of time spent on errands and time spent reading were significantly related to recall, along with time spent playing word games (primarily doing crossword puzzles).

In addition to the simple correlation analyses, some multiple regression analyses were performed in an effort to better predict prose recall scores. Stepwise multiple regression procedures (the MAXR technique from the SAS package) were conducted separately for the all-age group and the older group, and separate analyses were performed using as independent variables (1) the reading variables only, 2) the activity variables only, and 3) a combination of demographic, reading and activity variables. A .05 entry criterion was used for the all-age analysis and a .10 criterion for analyses with the older group. Results of these analyses appear in Table 3. For the all-age analyses, 40% of the variance in recall could be explained by the reading variables of technical journals, science, religion, and textbooks. Similarly, the activity variables of studying, reading and doing clerical activities accounted for 32% of the variance in recall. When demographic variables are entered into the regression equations little is left for reading and activity variables to explain: education and age alone account for 55% of the variance in the recall measure. Note, however, that reading contributes a small but significant amount (5%) to the explanation of recall once education and age have been accounted for, even though it is not

significantly correlated with recall when it stands alone.

Insert Table 3 about here

The number of subjects in the older age group (N=18) is too small to lend itself well to multiple regression techniques. The results thus tend to mirror the simple regression analyses rather closely. Thus the variables of vocabulary, errands, reading activity, and letters explain most of the variance in recall. A small positive contribution is also made by reading of literary magazines; this is in contrast to the negative contribution of literary magazines in the all-age analysis.

Comparison of Older High and Average Vocabulary Groups:

Further analyses were undertaken to discover if there were differences between the two older vocabulary groups with respect to the reading and activity variables which predict recall. Though the N in each group is quite small (9), these analyses produced some very interesting results. For the older high vocabulary group, recall performance is significantly correlated with hours spent reading newspapers (.89, $p<.01$), total hours spent reading ($r=.75$, $p<.05$), and hours spend doing errands ($r=.88$, $p<.01$). For the older average vocabulary group, recall performance has a signficant positive correlation with reading religious materials ($r=.71$, $p<.05$), and significant negative correlations with hours spent reading newspapers ($r= -.91$, $p<.001$) and hours spent in physical activity ($r= -.67$, $p<.05$).

There is thus a striking difference in the relationship of

newspaper reading to recall between the two groups: for the high ability group there is almost a perfect positive correlation, while for the average group the correlation is equally good, but in the opposite direction. To determine if this difference was a result of outliers, the scatter diagrams for the correlations were plotted. These appear in Figure 1. It is clear from the figure that the correlations are solid and not based on outliers. A similar, but less striking situation exists for the effects of total time spent reading on recall: the high vocabulary group has a significant positive correlation of .75 ($p<.05$) while the correlation for the average group is negative -.57 ($p<.11$). Since a large proportion of the reading done by older people is of the newspaper (40% for the high group, 47% for the average group) these two findings are clearly related.

Insert Figure 1 about here

DISCUSSION

Demographic Effects:

As was the case for Meyer & Rice (1983), we found a significant difference in the amount of prose recalled by young and older adults of average verbal ability, but no such significant differences between adults of high verbal ability. This replication of findings is not surprising, since for the most part the subjects used here were a subset of those in Meyer

and Rice. However, since much of this paper is directed at investigating the behaviors which may underlie the differing performance of older adults of differing abilities, it is important to establish this finding for this particular sample of subjects.

The primacy of education over vocabulary as a predictor of recall is a reversal of the findings of Rice & Meyer (1985b), who found vocabulary to be a better predictor than education for all age groups. While the subjects used here are also largely a subset of those in that Rice and Meyer, a fairly large proportion of the young high vocabulary group were new recruits from a post-graduate population. Since this group has both high recall and high education scores, their inclusion would produce this reversal in magnitude for these predictors. As was the case for Rice and Meyer (1985b), we find a general decline in recall with increasing age, though this effect is secondary to and mediated by education (and/or vocabulary).

The demographic variables used in this study were the best predictors of prose recall. The multiple regression analyses showed that when education and age were entered into the equation, about 50% of the variance in the measure was accounted for, leaving little explanatory power for the reading and activity variables. However, this does not mean that this study of everyday reading and activities was for naught. On the contrary, it was expected that the behaviors to be examined would be strongly related to age and ability descriptors. The question is whether these everyday behaviors are related to

prose recall performance.

Reading Effects:

The expectations with respect to the relationships between the reading variables and prose recall were largely confirmed for the all-age analysis. The reading of textbooks, technical journals and science books were related to recall. These items require skills very close to those needed in a prose recall task, and presumably are being read for later use. Total time spent reading was also a significant predictor of recall, confirming an expectation of the practice model. These findings are in line with those of Rice and Meyer (1985a), who used questionnaire data to generate similar results. We have no explanation for the finding that reading of literary magazines had an overall negative impact on recall, especially given that it had a positive correlation for the older group when they were analyzed separately.

The results for the analysis of the older group alone are more surprising and interesting. The extremely strong negative correlation between reading letters and mail and recall is surprising and at first glance baffling. One possible explanation is that although subjects were asked to record all the reading they did, in practice very little "incidental" or casual reading was reported. For adults who have reading difficulties, reading a letter may be a significant reading event, to be listed on our diary form. On the other hand, more able readers did not think to record such fleeting moments of

reading (this also suggests that the actual total time reading may be underreported for better readers). The presence of this correlation and this particular explanation also points up the need to guard against viewing the reading and activity variables as "causing" prose recall performance. We certainly would not want to say that reading letters from your family causes you to remember less prose!

The reading of religious materials is positively related to recall in the all-age multiple regression analysis and for the older group in the simple regression analyses. It may be that the study of the Bible and other materials is similar to the study of school texts and technical materials. The religious category is the only one for which the old average group shows a positive correlation with recall.

The most striking of the reading variable findings has to do with the newspaper reading of older adults. As indicated in the results section, we found diametrically opposed relations between newspaper reading and prose recall performance for average and for high ability older adults. For older adults of high verbal ability, the more time they spent reading newspapers, the HIGHER their prose recall score. For older adults of average verbal ability, the more time they spent reading newspapers, the LOWER their prose recall score. The data for total time spent reading follow a similar pattern. Clearly a simple practice model will not suffice here. In fact, the appearance is that practice reading newspapers is harmful for older adults of average verbal ability. However, there is

at least one confounding variable here. For older adults of lesser ability, it may take more time to read the same amount of newspaper, so that actual time spent reading may not be the best measure of practice. The apparent negative relation between practice and recall then can be seen to result from the slower reading speed of the less able readers. Some support for the supposition that the average vocabulary group contained slower readers comes from the fact that the time taken to read the experimental passages was 30% longer for the average group (mean = 204 seconds/passage) than for the high group (mean = 155 seconds/passage), though the difference is not significant ($p=.10$).

Instead of a simple linear relation between practice in reading (measured by time spent) and recall, we have a much more complex situation. It would appear that there is a certain skill level threshhold, below which simple practice at reading is ineffective. Above the threshhold, reading practice is related to high levels of recall performance. The precise nature of this threshhold or the specific skills involved cannot be determined from the data in this study. However, previous research would suggest that an important skill is the ability to use a "structure strategy" (Meyer, 1981) in which the reader identifies and uses the author's organizational plan for a passage to guide his comprehension and recall. Meyer has recently designed a program to teach this strategy to adults (Meyer & Bartlett, 1985).

Activity Effects:

In the all-age multiple regression analysis using the activity variables, the activities which correlate with recall are primarily those which require reading: time spent studying, time spent reading, and clerical activities. In the simple regression analysis the additional variable of time spent in personal care correlates negatively with recall. Since there is no reason to believe that the skills involved in personal care are related to those involved in prose recall, this correlation probably reflects the fact that both recall and personal care are correlated with age (r = .46 for personal care), with older adults spending more time at personal tasks. On the other hand, the time spent reading variable continues in the equation even when age and education are included. In general, the fact that activities which require reading are related to recall provides some support for a practice model.

The analysis for the older age group also identifies reading as being related to recall, but a more surprising finding is the relationship between errands and recall. At first glance this relation seems unlikely, but a couple of explanations suggest themselves. First, a case might be made for errands requiring some of the cognitive skills in prose recall: a certain amount of planning is needed, a sequential ordering of activities is usually made in advance, items to be purchased or tasks to be accomplished must be recalled. The difficulty with this explanation is that those who are best at these tasks are likely to be so efficient at errand-running that

they will spend less time at it, rather than more. The more likely explanation is that running errands is characteristic of an older adult who maintains an active, community-oriented lifestyle (see Rice, 1986b). Such an explanation is supported by the strong positive (though not significant) relations between recall and attendance at meetings and doing volunteer work, and the negative correlations with the more insular activities of games and handicrafts. Wolf (1977) also found that older adults interested in reading were those who were "active and involved."

One of the most interesting analyses is of the leisure activities of the older group. Over half of the variance in recall is explained by how much time is spent playing word games (primarily crossword puzzles) and how much spent is games of chance (primarily bingo). Puzzle doers remember more, bingo players less. As has been the case for most of the activity variables which are related to recall, doing crossword puzzles requires considerable literacy skills. While many of the characteristics of prose are not present, so that planning and ordering are not skills required for crossword puzzles, such puzzles do require retrieval of verbal information. It is thus possible that doing crossword puzzles is related to prose recall because they provide some practice in the skills necessary for successful recall. A more probable (though not necessarily contradictory) explanation is that those who enjoy verbal challenges do well on both types of tasks.

The Practice Effect Explanation:

Our data support the contention of Rice and Meyer (1985a) that "the highest scorers on the prose recall tasks ... are readers who are practiced at reading for later use of the information which they have read." The data also illustrate the danger of trying to suggest that reading or other activities "cause" better performance on recall tasks. It is certainly not appropriate to say, for instance, that reading letters or playing bingo will impair an adult's ability to recall prose (even though these variables are negatively related to recall), or conversely that doing more errands will improve it. The findings with respect to newspaper reading by older adults also suggest that practice, if measured by the amount of time spent reading, is not in the least efficacious for adults of average verbal ability. Some minimum skill level appears to be necessary before practice becomes a factor. Nevertheless, it is possible to conclude that adults who have more education, and who spend time studying, including Bible study, do best on the prose recall task.

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Table 1. Age, Education and Vocabulary Means for Subject Groups

Subject Group	Age (years)	Quick Vocabulary	Education (years)
Young			
Average	23.4	39.9	14.7
High	27.0	79.1	18.2
Middle			
Average	48.4	46.9	12.2
High	48.3	83.6	18.2
Old			
Average	68.3	42.7	12.3
High	67.8	85.7	16.1

Table 2. List of Independent Variables and their Correlations (r) with Recall

	All-age Analysis (N=54)	Older Analysis (N=18)
Demographic Variables		
Age	-.41**	-.13
Vocabulary	.49***	.67**
Education	.66***	.54*
Reading Variables		
Weekly hours spent reading--		
Total	.32*	.36
Textbooks	.36**	.19
Fiction books	-.07	-.13
Newspaper	.01	.35
Whether or not read--		
Self help books	.02	-.19
History books	-.07	-.07
Science books	.20	.21
Religious materials	.25	.53*
Technical journals	.48***	.15
Technical reference books	.22	.04
Letters and mail	-.15	-.74***
Own notes and writings	.23	.02
Poetry	.08	-.01
Pamphlets	.06	-.09
Newsletters	.23	-.02
Children's literature	-.01	-.16
News magazines	.04	-.07
Literary magazines	.03	.23
Science magazines	-.01	.13
General interest magazines	-.03	-.10
Catalogs	.13	.15
Documents and bills	-.05	-.15
Activity variables		
Sleep	-.18	-.06
Personal care	-.31*	-.24
Errands	.01	.55*
Meetings	.20	.37
Audience	.16	-.02
Socialize	.10	-.18
Physical	-.16	-.23
Musical	.04	.16
Handicrafts	-.21	-.30
Clerical	.21	.29
Sightseeing	-.01	-.32

Table 2. (cont'd.)

	All-age analysis	Older analysis
Television	-.16	.18
Reading	.20	.54*
Writing (short items)	.02	.25
Writing (long projects)	.24	.15
Games	-.12	.00
Class	.16	.14
Study	.34*	.15
Speak	.02	.11
Older leisure variables--		
Volunteer work		.43
Cards - skill		-.32
Cards - chance		-.17
Games of chance		-.46
Word games		.59**

*p<.05
**p<.01
***p<.001

Table 3. Multiple Regression Analyses of Prose Recall

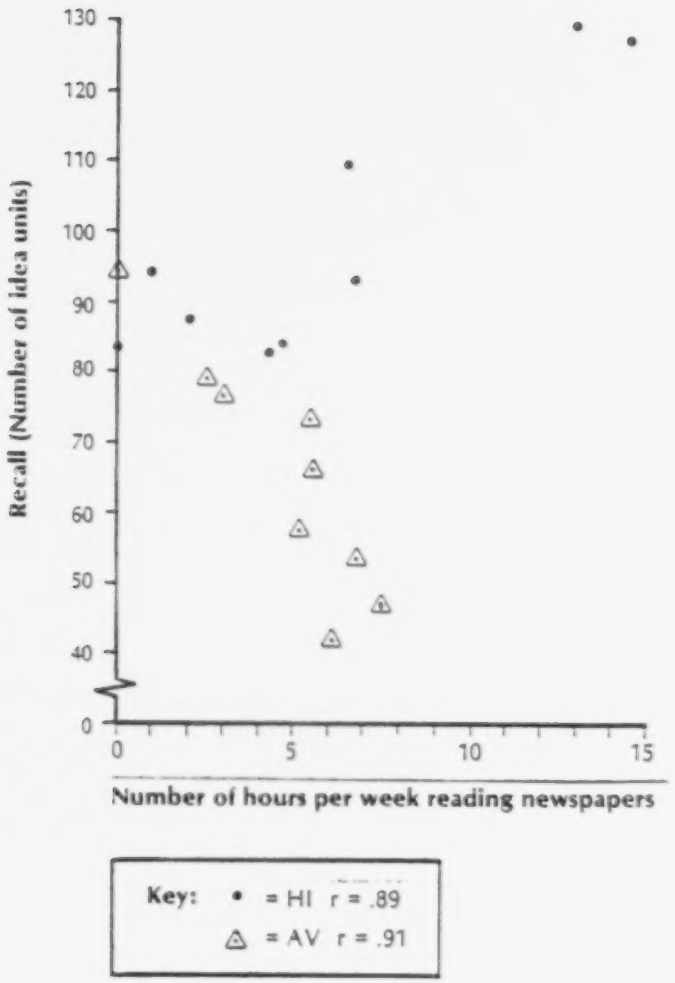
All-age analysis			Older Analysis		
Variable	Sign	Contribution(a)	Variable	Sign	Contribution
Reading Variables:					
r^2 =.40 F(4,49)=8.23			r^2 =.64 F(2,15)=13.2		
Technical journals**	+	.12	Letters & mail***	-	.58
Science**	+	.10	Literary magazines	+	.09
Religion*	+	.06			
Textbooks*	+	.06			
Activity Variables:					
r^2 =.32 F(4,49)=7.83			r^2 =.46 F(2,15)=6.32		
Study***	+	.21	Errands*	+	.17
Reading**	+	.16	Reading*	+	.15
Clerical**	+	.10			
			r^2 =.51 F(2.15)=7.68		
Leisure Activities: (Old only)			Word games**	+	.30
			Games of chance*	-	.16
Combined Variables					
r^2 =.61 F(4,49)=18.78			r^2 =.68 F(2,15)=15.88		
Education***	+	.25	Vocabulary***	+	.38
Age***	-	.11	Errands**	+	.23
Reading (Activity)*	+	.05			
Literary Magazines	-	.05			

(a)This is the amount by which the r^2 would be reduced if the variable were removed from the equation.

*p<.05
**p<.01
***p<.001

Figure Captions

Figure 1. Scatter diagram of the time spent reading newspapers against prose recall scores for the average and high vocabulary older adult groups.


130
120
110
100
90
80
70
60
50
40
0
0
5
10
15
Recall (Number of idea units)
Number of hours per week reading newspapers
Key: • = HI r = .89
△ = AV r = .91